

WHAT IS CLAIMED IS:

1. An actuator comprising:
  - a housing, wherein said housing further comprises a thrust support;
  - an electric motor disposed in said housing, wherein said motor further comprises a shaft;
  - a worm gear operatively connected to said motor;
  - a gear train disposed in said housing, said gear train comprising a set of spur gears, wherein said worm gear drives at least one of said spur gears;
  - an output gear disposed in said housing, wherein at least one of said spur gears drives said output gear; and
  - a driver operatively connected to said output gear.
2. The actuator as in claim 1 further comprising a sensor gear wherein said output gear drives said sensor gear.
3. The actuator as in claim 2 further comprising a sensor wheel wherein said sensor wheel is operatively connected to said sensor gear.
4. The actuator as in claim 3 further comprising an optical encoder wherein said optical encoder is operatively connected to a printed circuit board.
5. The actuator as in claim 3 wherein said sensor wheel comprises magnetized points.
6. The actuator as in claim 5 further comprising a Hall sensor wherein said Hall sensor is operatively connected to a printed circuit board.
7. An actuator comprising:
  - a housing, wherein said housing further comprises a thrust support;
  - an electric motor disposed in said housing;
  - an output shaft operatively connected to said motor,

a worm, said worm being rotatable with said output shaft;  
a worm gear rotatable on a gear shaft having external teeth and hub teeth wherein said worm meshes with said external teeth of said worm gear;  
an internal gear rotatable on a gear shaft having external teeth and hub teeth wherein said hub teeth of said worm gear mesh with said external teeth of said internal gear;  
an output gear rotatable on a gear shaft having teeth wherein said hub teeth of said internal gear mesh with said teeth of said output gear;  
a sensor gear rotatable on a sensor gear shaft having teeth wherein said teeth of said output gear mesh with said teeth of said sensor gear;  
a sensor wheel, wherein said sensor wheel is operatively connected to said sensor gear shaft;  
a printed circuit board, wherein said optical encoder is operatively connected to said printed circuit board; and  
a driver, said driver is operatively connected to said output gear.

8. The actuator as in claim 7 wherein said sensor wheel comprises a plurality of slots.

9. The actuator as in claim 8 further comprising an optical encoder wherein said optical encoder is operatively connected to said printed circuit board.

10. The actuator as in claim 7 wherein said sensor wheel comprises a plurality of magnetized points.

11. The actuator as in claim 10 further comprising a Hall sensor wherein said Hall sensor is operatively connected to said printed circuit board.

12. An actuator comprising:  
a housing, wherein said housing further comprises a thrust support  
an electric motor disposed in said housing;

an output shaft operatively connected to said motor, said output shaft containing a worm rotatable with said output shaft;

a gear train disposed in said housing, said gear train comprised of a plurality of spur gears having external teeth and hub teeth wherein said worm meshes with the external teeth of a first spur gear and the hub teeth of said first spur gear mesh with the external teeth of a second spur gear;

an output gear having teeth, said output gear is driven by the hub teeth of one of said spur gears;

a driver, said driver is operatively connected to said output gear.

13. The actuator as in claim 12 further comprising a sensor gear having teeth and rotatable on a sensory gear shaft wherein said teeth of said output gear mesh with said teeth of said sensor gear causing its rotation.

14. The actuator as in claim 13 further comprising a sensor wheel wherein said sensor wheel is rotatably mounted on said sensor gear shaft.

15. The actuator as in claim 14 further comprising an optical encoder wherein said optical encoder detects the rotation of said sensor wheel.

16. The actuator as in claim 15 further comprising a printed circuit board wherein said optical encoder is operatively connected to said printed circuit board.

17. The actuator as in claim 13 further comprising a Hall encoder wherein said Hall encoder detects the rotation of said sensor wheel.

18. The actuator as in claim 17 further comprising a printed circuit board wherein said Hall encoder is operatively connected to said printed circuit board.